



PATENT
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Harris et al.

Application No.: 10/080,915

Confirmation No.: 7799

Filed: February 22, 2002

Art Unit: 1742

For: METHOD AND APPARATUS FOR
MANUALLY AND AUTOMATICALLY
PROCESSING MICROELECTRONIC
WORKPIECES

Examiner: H. D. Wilkins

DECLARATION OF RANDY HARRIS
AND DANIEL J. WOODRUFF UNDER 37 C.F.R. § 1.131

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

We, Randy Harris and Daniel J. Woodruff, declare and state that:

1. We are joint inventors of the invention described and claimed in U.S. Patent Application No. 10/080,915 filed February 22, 2002. This declaration establishes aspects of the invention (conception and constructive reduction to practice by filing a patent application) in this country before July 13, 2001, and thus before the U.S. filing date of U.S. Patent No. 6,663,333 to Kinnard et al., as detailed below.

2. Before July 13, 2001, we conceived and constructively reduced to practice aspects of the invention currently presented in the above-captioned patent application. Our conception and constructive reduction to practice of these aspects of the invention are corroborated by U.S. Application No. 09/875,300, published as US 2001/0043856A and issued as U.S. Patent No. 6,752,584 (hereinafter, "the '584 Patent," attached as Exhibit A).

3. Aspects of our invention are directed to an apparatus for processing microelectronic workpieces. The apparatus includes an input/output station, multiple processing stations, and a transfer device configured to move the microelectronic workpieces between the input/output station and the processing stations. The '584 Patent discloses features of this apparatus and evidence of its constructive reduction to practice.

4. As shown in the '584 Patent, we conceived of an apparatus for processing a microelectronic workpiece. In one embodiment, such as is set forth in claim 1, the apparatus includes a plurality of processing stations, an input/output station configured to support at least one microelectronic workpiece for automatic transfer to and from the processing station (Exhibit A at Figures 1 and 3A, and associated text at column 6, lines 18-56), and a transfer device positioned proximate to the input/output station and the processing stations (Id.). The transfer device can be positioned to release the microelectronic workpieces for processing at the processing stations (Exhibit A at column 9, lines 63-67). The transfer device can include a first end effector and a second end effector, each being rotatable relative to the other about a common axis (Exhibit A at Figure 2B).

5. We also conceived of further aspects of an apparatus for processing a microelectronic workpiece, as identified in several further claims. For example, with respect to claim 21, we identified at least one of the processing stations as one that can include a material removal station configured to remove material from the microelectronic workpieces (see Exhibit A, column 8 at lines 63-64). With respect to claim 28, we conceived of an embodiment in which the apparatus includes a thermal processing station having a thermal processing space configured to removably receive the microelectronic workpiece, and a heat transfer unit at least proximate to the thermal processing space to elevate a temperature of the microelectronic workpiece (see Exhibit A at column 8, lines 66 with reference to a rapid thermal annealing chamber; see also Exhibit A at column 6, line 52, incorporating by reference U.S. Application 09/501,002 (now issued as U.S. Patent No. 6,471,913 and attached as Exhibit B) and U.S. Application 09/773,608 (now issued as U.S. Patent No. 6,780,374 and attached as Exhibit C)).

6. We also conceived of still further aspects of an apparatus for processing a microelectronic workpiece, as identified in several further claims. With respect to claim 7, we conceived of an embodiment that includes a metrology station (see Exhibit A at column 8, line 67). With respect to claim 9, we conceived of an embodiment of the apparatus wherein at least one of the processing stations includes a material removal station (see Exhibit A at column 8, lines 63-64 with reference to clean/etch capsules). With respect to claims 10 and 11, we conceived of embodiments of a thermal processing station with heaters and other elements (see Exhibit A at column 8, lines 66 and column 6, line 52). With respect to claim 57, we conceived of an embodiment of the apparatus wherein at least one of the processing stations includes an application station configured to apply a material to the microelectronic workpiece (see Exhibit A at column 9, line 7 with reference to an electroless plating chamber, and line 6 with reference to electroplating chambers). With reference to claim 19, we conceived of an embodiment of the apparatus that can include a material removal station and an application station configured to apply a blanket layer of conductive material, and a thermal processing station configured to anneal a conductive material (see Exhibit A at column 8, line 63 to column 9, line 12).

7. We also conceived of yet further aspects of an apparatus for processing a microelectronic workpiece as identified in yet further claims. With respect to claim 58, we conceived of an embodiment in which the transfer device can include a robot having an eccentric projection with the first and second end effectors both carried by the eccentric projection and rotatable relative to the eccentric projection about the common axis (see Exhibit A, Figure 2B). With respect to claim 59, we conceived of an embodiment of the apparatus wherein the transfer device includes a lift positioned to move upwardly and downwardly, and an arm carried by the lift, with the arm being rotatable relative to the lift about an axis generally parallel to the common axis about which the first and second end effectors rotate, with the arm including an eccentric projection, and with the first and second end effectors both carried by the eccentric projection and rotatable relative to the eccentric projection about the common axis (see Exhibit A, Figure 2B).

8. After conceiving this invention, we constructively reduced the invention to practice by filing U.S. Application No. 09/875,300 application prior to July 13, 2001. U.S.

Application No. 09/875,300 was published as US 2001/0043856A and issued as the '584 Patent, attached as Exhibit A.


9. We further declare that all statements herein made of our own knowledge are true, and that all statements made on information or belief are believed to be true; and further, that the statements are made with the knowledge that the making of willful or false statements or the like is punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and may jeopardize the validity of any patent issuing from this patent application.

Dated this 30th day of November, 2005.



Randy Harris

Residence : _____, County of FLATHEAD
State of MONTANA
Citizenship : United States
P.O. Address :



Daniel J. Woodruff

Residence : _____, County of FLATHEAD
State of MONTANA
Citizenship : United States
P.O. Address :



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EXHIBIT A

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EXHIBIT B

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EXHIBIT C